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EXAMINER	
KOCH, GEORGE R	
ART UNIT	**PAPER NUMBER**
1734	

DATE MAILED: 07/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/811,991	SUZUKI, YASUJI	
	Examiner	Art Unit	
	George R. Koch III	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 8-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *19-22* is/are allowed.

6)☒ Claim(s) *1-3 and 8-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2 and 12-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Yasui (JP-04363163 A, and a translation is included).

Yasui discloses a method for forming a coated film of a thermoplastic material (see abstract - which recites thermoplastic resin) on a region of at least a part of an inner cylinder so as to extend in a whole circumferential direction thereof (as shown in Figure 2), comprising the steps of providing a paste applying machine (see Figure 1, items 7-13 or Figure 3, items 7, 10, 12, 13, 14, 15 and 15a) for discharging a molten paste (i.e., the resin primer) of the thermoplastic material kept molten by heating from a distal end of a nozzle (see abstract, which recites "thermally sprayed". Thermally sprayed defines that the material will be heated and melted, which indicates that the material will achieve molten paste form, and see the translation, paragraph 0014 on

page 5, which specifically cites that the material is molten when it is sprayed), arranging said nozzle in space in the cylinder so that the molten paste is discharged toward the inner peripheral surface of the cylinder (see either Figure 1 or 3), moving the nozzle along a rotational center of the cylinder (via structure 9 of Figure 1, or structures 15 and 15a of Figure 3 and described in paragraph 0015, which are described in the specification as rotary elements and see paragraphs 0018 and 0025 which disclose rotational speeds) within a range opposite to the region while rotating the cylinder (via structures 4, 4a and 5 of Figure 1) in said circumferential direction and discharging the molten pass from the nozzle (shown in Figures 1 and 3), and spreading the molten paste applied to the inner peripheral surface (as shown in Figures 1, 2,and 3). The reference does not specifically recite that the spreading occurs by means of centrifugal force acting on the cylinder being rotated, to thereby wholly cover the region with molten paste, but does disclose rotation. The translation shows that thermoplastic material is molten when applied to the interior of the pipe, and not a solid as alleged by applicant. The translation also shows that the adhesive material is actually a primer and that the primer is "dried" before application of the molten thermoplastic material (see translation of paragraph 0017 on page 6). Furthermore, the reference shows that the cylinder is rotated during the coating operation (Figures 1, 2 and 3) and that the rotation occurs at a rate of 2 rpm. The rotation of the cylinder inherently creates a rotational force from the reference frame of the molten thermoplastic material, which creates spreading and thereby would result in wholly covering the region with molten paste.

As to claim 2, Yasui shows that the molten paste discharged onto the inner peripheral surface is not scattered to a region other than the inner peripheral surface. Therefore, Yasui inherently discloses that the viscosity of the thermally treated molten paste, the speed of the cylinder, and speed of movement of the nozzle have been determined so as to prevent the molten paste discharged onto the inner peripheral surface from the nozzle from being scattered to a region other than said region (i.e., other than the inner peripheral surface).

As to claim 12, Yasui discloses that the spreading step overlaps the moving step (as shown in Figure 1).

As to claim 13, this movement results in a spiral pattern.

Claim 15 is rejected on similar grounds as claim 1 above. Yasui as translated discloses the steps of discharging the molten paste (see paragraph 0014, which discloses the molten paste), arranging the nozzle (see Figures) as claimed to discharge towards the inner peripheral surface, moving the nozzle (see paragraph 0020) along an axis of the cylinder while rotating the cylinder, and spreading the molten paste (see discussion of this structure above).

Claim 16 is rejected on similar grounds as claim 2 above.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1, 2, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasui in view of either of Feder (US Patent 4,687,531) or Potoczky (US Patent 4,687,531).

Yasui discloses a method for forming a coated film of a thermoplastic material (see abstract - which recites thermoplastic resin) on a region of at least a part of an inner cylinder so as to extend in a whole circumferential direction thereof (as shown in Figure 2), comprising the steps of providing a paste applying machine (see Figure 1, items 7-13 or Figure 3, items 7, 10, 12, 13, 14, 15 and 15a) for discharging a molten paste (i.e., the resin primer) of the thermoplastic material kept molten by heating from a distal end of a nozzle (see abstract, which recites "thermally sprayed). Thermally sprayed defines that the material will be heated and melted, which indicates that the material will achieve molten paste form, and see the translation, paragraph 0014 on page 5, which specifically cites that the material is molten when it is sprayed). Yasui also discloses arranging said nozzle in space in the cylinder so that the molten paste is

discharged toward the inner peripheral surface of the cylinder (see either Figure 1 or 3), moving the nozzle along a rotational center of the cylinder (via structure 9 of Figure 1, or structures 15 and 15a of Figure 3 and described in paragraph 0015, which are described in the specification as rotary elements and see paragraphs 0018 and 0025 which disclose rotational speeds) within a range opposite to the region while rotating the cylinder (via structures 4, 4a and 5 of Figure 1) in said circumferential direction and discharging the molten pass from the nozzle (shown in Figures 1 and 3), and spreading the molten paste applied to the inner peripheral surface (as shown in Figures 1, 2,and 3).

However, the reference does not specifically recite that the spreading occurs by means of centrifugal force acting on the cylinder, while the cylinder is being rotated, to thereby wholly cover the region with molten paste. One can interpret this as not disclosing a centrifugal force that creates spreading and thereby wholly covers the region with molten paste.

In any event, both Feder and Potokczy disclose thermal spraying of a molten material onto the interior substrate. Furthermore, Feder discloses that the rotation of the substrate distributes the fluidized particles into lamina, and that further centrifugal forces automatically distribute the particles effectively (see abstract). Additionally, Potoczky discloses that centrifugal forces evenly distribute molten material (column 2, lines 40-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized rotation and centrifugal forces to spread the material effectively and uniformly.

As to claim 2, Yasui as modified by Feder and Potoczky shows that the molten paste discharged onto the inner peripheral surface is not scattered to a region other than the inner peripheral surface. Therefore, Yasui as modified by Feder and Potoczky inherently discloses that the viscosity of the thermally treated molten paste, the speed of the cylinder, and speed of movement of the nozzle have been determined so as to prevent the molten paste discharged onto the inner peripheral surface from the nozzle from being scattered to a region other than said region (i.e., other than the inner peripheral surface).

As to claim 12, Yasui and Feder disclose that the spreading step overlaps the moving step (as shown in Figure 1 of Yasui and in columns 6-7 of Feder).

As to claim 13, this movement disclosed in both Yasui and Feder results in a spiral pattern.

6. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasui as applied to claims 15 and 16 above, and further in view of Snow (US Patent 4,474,134).

As to claim 17, Yasui does not suggest coating the inner peripheral surface only partially by moving said nozzle from an inner boundary of the region, outwardy and axially of the cylinder, while rotating the cylinder and discharging the molten paste from the nozzle, until an outer boundary of the region is reached.

However, Snow discloses coating the inner peripheral surface only partially by moving said nozzle from an inner boundary of the region, outwardy and axially of the

cylinder, while rotating the cylinder and discharging the molten paste from the nozzle, until an outer boundary of the region is reached. In Figure 5, Snow discloses that an end shield 98 and gasket 97 is used to protect a portion of the inner peripheral surface, and the other portion is coated. Snow discloses that this prevents the end portion from being coated, i.e., results in coating the inner peripheral surface only partially. One in the art would immediately appreciate that this prevent coating build-up at the end portions and allows for connection of pipe segments. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize such coating techniques in order to prevent coating of the end portions of the pipe.

As to claim 18, Yasui does not disclose increasing the rotational speed of the cylinder after the coating operation.

Snow discloses using a multi-directional coating apparatus to apply coating around the interior section. This results in a distributed coating and is analogous to the step of coating while rotating the pipe. Snow follows the coating step with a step of subjecting the pipe to increase rotation (see column 7, lines 11-28) at 50 to 100 g's. Snow discloses that this step enables the coating to be forced into the cracks and interstices of the pipes, improving the coating quality. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a second step of high speed rotation in order to force the coating into cracks and interstices, thus improving coating quality.

7. Claim 3, 8-11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasui or Yasui in view of either of Feder and Potoczky.

Yasui discloses the method of claim 1, including the steps of providing a paste applying machine as claimed, arranging the nozzle in space as claimed, moving the nozzle as claimed and spreading the molten paste as claimed (see rejection of claim 1 above for citation and details). Furthermore as to claim 2, Yasui also inherently discloses these additional limitations of since the Yasui inherently has a rotation speed of the cylinder (since the cylinder is rotated), a speed of movement of the nozzle (since the nozzle is disclosed as moving), and a viscosity is present (since the resin is thermally sprayed as a resin, i.e., viscous material) and since the molten paste is discharged onto the inner peripheral surface from the nozzle and not scattered onto a region other than the inner peripheral surface. Additionally, Yasui discloses many of the parameters in generic - such as rotational speed, nozzle movement speed, discharge pressure and paste properties (thickness and type) in paragraphs 0018 and 0025.

Yasui does not disclose said molten paste is discharged from said nozzle under a pressure of 1 kg/cm^2 or less under the conditions that said viscosity of said molten paste is set to be within a range of between 50cp and 100 cp, said rotational speed of said cylinder is set to be within a range of between 2700 rpm and 3300 rpm, said speed of movement of said nozzle is set to be within a range of between 0.055 m/s and 0.08 m/s and a distance between said distal end of said nozzle and said inner peripheral surface of said cylinder is set to be within a range of between 3mm and 7mm.

However, the apparatus of Yasui discloses the general conditions of the claim, i.e., that the resin is sprayed in a heated state (and thus has a viscosity and a spray pressure), that the cylinder rotates (and thus has a rpm setting), that the nozzle moves (and thus has a nozzle speed), that the nozzle is spaced from the cylinder (and thus has a distance from the distal end). Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2nd 454, 456, 105 USPQ 233, 235 (CCPA 1955) (and see MPEP 2144.05). Thus, it would have been well within the skill of one of ordinary skill in the art to have selected the claimed ranges and settings as part of routine experimentation. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have selected, in the process of routine experimentation to optimize the process of Yasui, the particular ranges and setting claimed.

Allowable Subject Matter

8. Claims 19-22 are allowed.

9. The following is an examiner's statement of reasons for allowance: In the context of an apparatus for forming a coated film of a thermoplastic material on a region of at least a part of an inner peripheral surface of a cylinder so as to extend in a whole circumferential direction thereof which includes a cylinder drive mechanism for rotating the cylinder in the circumferential direction about a central line of the cylinder, a paste applying machine for discharging a molten paste of the thermoplastic material kept

molten by heating from a distal end of a nozzle, the paste applying machine including a gun head provided with the nozzle, a gun head moving mechanism for moving the gun head, and a molten paste feed equipment for feeding the molten paste to the gun head, the prior art of record does not suggest or make obvious the further limitation of a timing controller, the timing controller being constructed in such a manner that operation timing of each of the cylinder drive mechanism, the gun head moving mechanism, and the molten paste feed equipment is determined so as to permit the cylinder to be rotated in the circumferential direction while keeping the nozzle arranged in a space in the cylinder and so as to permit the nozzle to be moved along a rotational center of the cylinder being rotated and within a range opposite to the region while keeping the molten paste discharge from the nozzle.

The prior art, for example, US 4,137,928; US 3,974,306; US 3,658,033; US 4,976,797; and JP 04-36163 (see translation) do suggest and make obvious an apparatus for forming a coated film of a thermoplastic material on a region of at least a part of an inner peripheral surface of a cylinder so as to extend in a whole circumferential direction thereof which includes a cylinder drive mechanism for rotating the cylinder in the circumferential direction about a central line of the cylinder, a paste applying machine for discharging a molten paste of the thermoplastic material kept molten by heating from a distal end of a nozzle, the paste applying machine including a gun head provided with the nozzle, a gun head moving mechanism for moving the gun head, and a molten paste feed equipment for feeding the molten paste to the gun head.

Furthermore, US 4,976,797 suggests rudimentary control mechanisms in a very similar apparatus, but lacks any mention of a timing controller, instead being devoted to pressure control.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

10. Applicant's arguments filed 11/09/2004 have been fully considered but they are not persuasive.

11. Applicant argues 1) that Yasui does not disclose molten thermoplastic paste. This is not persuasive. The translation of Yasui specifices that the material is sprayed in a molten thermoplastic state.

Applicant argues 2) that Yasui does not disclose rotational or centrifugal operation, and that the Japanese text or translation does not disclose this movement. However, Yasui's figures show 1) rollers (items 4 and 4a), a stationary nozzle (item 7) and 3) molten thermoplastic on the upper end of the pipe. The translation specifies a rotational speed of 2 rpm. Since the material is applied to a dried surface with primer applied thereupon (as opposed to Therefore, Yasui's figures disclose the rotational motion. Centrifugal motion is the inherent result of the molten material

12. In any event, both Feder and Potoczky disclose that rotational, spiral, or centrifugal motion is used to distribute materials effectively.

13. Additionally, applicant argues that the rejection of claims 3, 8-11 and 14 is improper because the art fails to recognize any of the claimed parameters. However, Yasui as translated recognizes the claimed parameters as effective for coating.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-800-877-8339 and

giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

George R. Koch III
Patent Examiner
Art Unit 1734

GRK
7/9/05